REMARKS

This Amendment is responsive to the Office Action of August 12, 2003 and a personal interview with the Examiner on January 6, 2004. Applicant wishes to thank Examiner Watkins for the courtesy of a personal interview on January 6, 2004.

At the interview, no agreement was reached. As a result of the lack of agreement on patentability, the applicants have redirected the claims and arguments herein for patentability.

Rejections of Record

Claims 36-46 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Heilman (AU 27337), in view of Amberg (U.S. 3,955,699), further in view of Anderson (U.S. 5,113,479).

Claims 36-46 also stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 15, 16 and 19 of U.S. Patent No. 5,993,942.

Suggestion Regarding Claims 44 and 46

Claims 44 and 46 have been amended to insert the phrase suggested by the Examiner in order to better depend from claim 41. Applicant notes that the amendments to claims 44 and 46 are not for reasons related to patentability, but rather to better clarify the language of those claims.

The Present Application

In the present application, a film **26** is made of a material which shrinks when heated **but does not shrink when exposed to radiant energy**, particularly infrared energy. Thus, when infrared light is shone on the present film, its state remains unchanged. It is only upon heating that the film shrinks.

A cutter **94** cuts the film circularly around the cup

forming a flange **102, 103**. The cup is raised against the hood **72**, particularly the screen **76** which the radiant energy heats, to hold the film in place.

In a first shrinking step, the skirt **102, 103** is subject to radiant energy in the form of infrared light. The film, of course, will not shrink under the influence of infrared light alone. Rather, it must be heated. To this end, a ring of the film which is destined to define the flange is treated with a material that heats when irradiated with infrared light. The means for converting infrared light to heat which is carried by the film, causes the flange to heat and shrink over the rim **13** of the cup.

In a second shrinking operation, the portion of the film which spans the cover of the cup is heat shrunk. However, because this portion of the film does not include a means for converting infrared light to heat, irradiating this portion of the film with infrared light will not cause the desired shrinking operation. Rather, a fine screen or mesh **76** is held against the top surface of the film. Upon exposure to radiant energy from lamp **70**, this screen, such as blackened aluminum, quickly becomes hot causing the portion of the film which spans the opening of the cup to shrink and tighten.

The References of Record

The **Heilman** (AU 27 337) patent discloses a film **10** which is cut and held over a container **16** by a shield **44**. The shield **44** shields the central portion of the film, covering the opening of the cup, from heat from a circular heater ring **40**. As set forth on page 10, second paragraph, a circular heating ring **40** heats the flange of the film with a fluid heat such as hot air or steam. The description is expanded in the last sentence of the third paragraph of page 10.

Thus, Heilman makes no suggestion of configuring the skirt portion of the film of material which is in anyway

different from the central portion. To the contrary, Heilman teaches against such a concept by requiring the use of a shield to shield the central portion from the heat applied to the skirt. When the container of Heilman is lowered, it passes by the heater ring causing the top to shrink because the same heater ring mechanism shrinks both the skirt and the top; it is essential that both be configured of like material. Again, there is no suggestion that the skirt should be configured of material which converts radiant energy into heat.

Amberg (U.S. 3,955,699) discloses a container closure system in which closures **11** are made by winding a cylindrical wound strip around a metallic mandrel or form whose external surface has the configuration of the internal surface of the skirt **15**. The cylindrically wound strip is exposed to heat while it is on the mandrel to cause it to shrink to the shape of the mandrel. Once shrunk and shaped like the mandrel, it is removed. The central panel **14** is joined to the skirt either before or after the skirt is removed from the mandrel. (col. 3, line 16 - col. 4, line 8). Once the lid is positioned on a cup, the skirt, which is opaque to infrared radiation, is shrunk by the application of infrared radiant energy.

Thus, the central portion of Amberg is a different construction which during the manufacture of lids is bonded to it. There is no suggestion of forming the closures of Amberg from a sheet. Further, Amberg makes no suggestion that the central panel be a shrinkable material which is shrinkable either by heat or by infrared irradiation.

In the alternate embodiment of Figure 5, Amberg does suggest that the central piece **14, 114** can be made of a thermally formable sheet of thermoplastic material in order to facilitate its being formed as illustrated in Figure 5. However, in both embodiments, the skirt **15** is formed with an

overlapped portion or free end **25** which serves as a graspable tab by which the closure skirt may be readily unwound and torn from the central panel **14, 114** when it is desired to open the container. (col. 5, lines 18-29).

Thus, Amberg suggests that the closure should be made of multiple materials including a circumferentially wrapped strip which forms the skirt **15, 115** and is lapped to form a pull tap **25.**

Anderson (U.S. 5,113,479) is directed to a method of heating a strip along a continuous web material using an ion lamp that is configured with reflectors to focus the radiation only on a thin strip (col. 1, lines 8-12). Anderson is concerned with heating only the single, longitudinal strip and not the material on either side which may be laminated with aluminum foil. When the section between the heated strip and the edge is laminated with aluminum foil, the heat may cause cracks and creases to form in the thin foil, after which the folded edge will not form a completely gas type seal (col. 1, lines 59-65). This may allow microbes to enter the aseptic packaging causing undesirable and potentially dangerous microbially growth in the previously sterile packaged material. More specifically, Anderson is concerned with heating a thermoplastic layer which is part of a continuous material web which also consists of a paper or cardboard layer laminated with the thermoplastic (col. 2, lines 9-14).

The thermoplastic layer forms an overhanging ledge **5** which extends beyond the heated strip of the non-thermoplastic continuous material web, e.g., aluminum foil (col. 2, lines 49-51). **Thus, the infrared lamp does not irradiate the thermoplastic layer 5.** Rather, it irradiates and heats the non-thermoplastic layer **4** to a temperature which **corresponds** to the melting point of the thermoplastic layer. The light is focused by reflectors to limit this

heating to a restricted area **7** (col. 2, lines 55-58).

Further, a darkly colored strip **6** may be printed on the aluminum foil or other web material **4** on the opposite side of the web material from the thermoplastic layer (col. 3, lines 1-10). In this manner, the color strip concentrates the heating of the layer **4** in the area where the thermoplastic material on its opposite surface is to be melted.

Thus, the infrared light is focused by the reflectors on the non-thermoplastic material and blocked from directly irradiating the exposed thermoplastic material along edge **5**.

The strip of thermoplastic material is heated to soften it (NOT SHRINK IT). Indeed, it is submitted that shrinkage would cause cracking and creasing of the aluminum layer - - something which Anderson expressly teaches should be avoided. The softened strip facilitates folding over the edge, which edge should be unheated to remain manageable (col. 2, l. 61-68).

The Claims Distinguish Patentably Over the References of Record

Claim 36 calls for a film substrate that contracts when heated and which remains unchanged upon exposure to radiant energy. The Heilman film contracts when heated. However, it does not state whether or not it also contracts in response to infrared light. The ultimate and antiultimate lines of paragraph 3 of page 10 suggest that Heilman's film likely contracts when exposed to either heat or infrared light, but it's not clear. In any case, Heilman does not suggest that the film should remain unchanged upon exposure to infrared light. In Amberg, the skirt **15** deforms when heated as is evident from being shaped on a heated mandrel and also shrinks when irradiated with infrared energy from bulbs **21**. Thus, Amberg clearly teaches away from a film which remains unchanged upon exposure to radiant energy. Anderson does not cure this shortcoming. The thermoplastic layer **5** of Anderson

melts when heated. Anderson does not teach or fairly suggest that the thermoplastic film **5** should shrink under either heat or infrared energy. In Anderson, shrinking would cause the aluminum foil to crack or crinkle. Moreover, the fact that Anderson uses reflector **2** to prevent the infrared light from reaching the exposed portion of the thermoplastic edge suggests that the thermoplastic film is adversely affected by infrared light and in some way changes a physical property. Thus, none of the references teach or fairly suggest a heat shrinkable film substrate which contracts when heated but which remains unchanged upon exposure to radiant energy.

Further, claim 36 calls for the downward extending portion to include a means to convert radiant energy to heat. It is submitted that portion **5** of Anderson is most closely analogous to the skirt in the references with which it is combined. The colored strip **6** is included on the aluminum foil or other substrate portions **4**, not the plastic portion. Moreover, claim 36 calls for exposure of this means to convert radiant energy to heat to cause the downward extending portion to heat shrink around the container rim. Heating the strip **6** of Anderson does not cause shrinkage of the thermoplastic layer **5**, only melting. Moreover, over hanging portion **5** of Anderson, which is most analogous to the skirt of the base reference, is not caused to shrink upon exposing the strip **6** of Anderson to infrared radiation. Quite to the contrary, Anderson specifically teaches that edge **5** should be protected from heating.

Accordingly, it is submitted that claim 36 is not rendered obvious by the combination of Heilman in view of Amberg further in view of Anderson.

An early allowance of claim 36 and claims 37-40, 42, 43, and 45 is requested.

Claim 41 is directed to a roll of heat shrinkable film. The heat shrinkable film is a substrate that contracts when

heated and which remains unchanged upon exposure to radiant energy. The film of Heilman does shrink when heated, but there is no suggestion that it should remain unchanged upon exposure to radiant energy. Amberg is not directed to a roll of a heat shrinkable film in the sense of claim 41. The "roll" of thermoplastic material is wound around a mandrel and lapped to define a pull tab **25**. The thermoplastic material is heat shrunk onto the mandrel, after which the center panel **14, 114** is attached. The skirt **15** is further shrunk by infrared radiation. Thus, the skirt **15** of Amberg must shrink on exposure to both heat and infrared radiant energy in order for Amberg to function in its normal and intended manner.

The thermoplastic layer of Anderson overhangs the aluminum foil or other web material **4** only at edge **5**. Unlike the skirts of Heilman and Amberg, edge region **5** must be protected from heating and infrared radiation. Thus, it is clear that the physical properties of the thermoplastic layer of Anderson are altered by both heat and infrared radiant energy. Thus, none of the references of record teach or fairly suggest a film that is heat shrinkable but remains unchanged upon exposure to the radiant energy.

Heilman and Amberg both look to contract the edge or skirt portion of the closure. By contrast, a central focus of the Anderson patent is to avoid heating or irradiating the edge region **5** with infrared radiation. It is with this avoidance of heating and altering the properties of the edge **5** in mind that Anderson suggests putting a dark strip on the aluminum foil or other material of the web to concentrate the heating away from the edge **5**. Because the strip **6** of Anderson is designed and used to avoid heating the edge **5**, it is submitted that Anderson provides no motivation to modify the skirts of Heilman or Amberg to enhance heating and shrinkage or other changes in the physical property of their

edge or skirt region.

Further, the skirt of Amberg is thermally formed from one material and bonded to a center panel **14**. Thus, the Amberg construction is not a roll of heat shrinkable film, rather a series of individual, stackable, closures.

Accordingly, it is submitted that claim 41 and claims 44 and 46 dependent therefrom distinguish patentably and unobviously over the references of record.

The Present Amendment

The present amendment is only for purposes of making editorial changes and not to change the scope of the amended claim.

There is No Motivation to Combine The References of Record

The Examiner has argued that Heilman teaches "a film which extends over the rim of a container and is heat shrunk onto the container by applying energy which may be in the form of infrared radiation to the edge" of the film. (Office Action, August 12, 2003, page 3). Applicants submit that Heilman does not teach the use of radiant energy such as infrared radiation to shrink a film. Rather, Heilman teaches directly heating the film by a heat source. First, Heilman only teaches the use of a transparent film and fails to teach or suggest imparting some opacity to the film. A transparent film, alone, typically will not generate heat when exposed to infrared radiation. Rather, some absorptive material is needed to cause the infrared energy to be transformed into heat energy. Because Heilman only teaches transparent film, Heilman requires the film to be shrunk by exposure to "blasts of hot air or steam or to heat caused by high frequency electricity, electrical resistance, infrared **heat**, or other heat..." (AU 27,337/67, page 9) (emphasis added). For example, an oven type device supplied with infrared energy

converts the infrared energy to heat energy which heat ultimately causes a heated surface of transparent shrink wrap film to shrink. (AU 27,337/67, page 10). Thus, the film is not exposed to and heated directly by radiant energy.

That Heilman simply fails to teach any mechanism by which radiant energy alone would cause film shrinkage is further evidenced by Heilman's requirement that a shield be tightly pressed against the container rim to cover the top portion of the film and prevent the top portion from shrinking when exposed to the heat. (AU 27,337/67, page 10). If Heilman were using infrared radiation, no shield would be necessary to protect the top from exposure because the transparent film would not shrink upon exposure to infrared radiation. The cover is required because Heilman directly applies heat to the film. Heilman, therefore, fails to teach imparting some opacity to the transparent film and fails to teach the use of infrared radiation to cause shrinkage of a film.

The Examiner, recognizing some deficiency in the Heilman reference with respect to imparting some opacity to certain portions of the film of the presently claimed invention, has cited Amberg, et al. for teaching the use of an opaque material on a lid edge so as to be directly heated by infrared radiation. Applicant respectfully submits there is no motivation to combine Amberg with Heilman. First, as previously described, Heilman fails to teach imparting opacity to a transparent film and also fails to teach shrinking the film energy such as infrared radiation. Rather, Heilman teaches using a source to directly heat the transparent film. Because Heilman teaches directly heating a transparent film there is no need to impart opacity to the Heilman film and, thus, there is no need to modify Heilman based on Amberg's teaching of heating a lid edge that is opaque. Moreover, because Heilman shrinks the skirt and the top with the same heat source, one would not construct the

skirt and the top differently. Consequently, there is no suggestion or teaching in the references of the need or desirability to modify Heilman.

Second, Amberg does not concern itself with transparent shrink wrap technology at all. Amberg is concerned with sealing a preformed rigid plastic lid onto a container. The lid in Amberg is a two-piece construction having a disk like central panel and a skirt that is bonded to an outer portion of the central panel. The skirt is a piece of a thermoplastic material that is preformed to a desired shape such as by winding over a metallic mandrel or form whose external surface has a configuration of the internal surface of this skirt. Heilman, on the other hand expressly states that its film is "unformed plastic." (AU 27,337/67, page 3). While the skirt portion of the lid in Amberg may be susceptible to shrinkage upon heating, the central panel is formed from a material that will not be subject to shrinkage upon exposure to heat. (*See* Amberg Abstract, col. 1, lines 64-66, col. 3, lines 28-33). Conversely, the entire film of the present cover is heat shrinkable, i.e., every portion of the film substrate set forth in the present claims is susceptible to shrinkage or contraction when heated.

Additionally, while using the phrase "shrinkage," Amberg is actually concerned with the sealing of a preformed lid to a container rather than the use of shrink wrap film to <u>form</u> a cover. Amberg teaches that the center panel does not shrink or stretch upon heating (e.g., col. 3, lines 28-33) and that the skirt is a non-stretchable material (col. 5, lines 11-13). Thus, when heated, the skirt essentially just melts onto the container to form the seal. With the present invention, the film edge absorbs energy such as infrared engery which is transferred to heat energy, thereby causing the film to shrink and seal to the container. The effect of the shrinkage of the film is to stretch other portions of the film, such as the film covering the top, and form the cover.

There is no suggestion in Amberg that imparting opacity to a stretchable transparent film will result in the film properly stretching to form a cover upon exposure to infrared radiation.

As such, the Examiner has provided no motivation to combine the teachings of the cited art to arrive at the presently claimed invention. Specifically, there is no motivation to use Amberg's teachings for sealing the sides of a preformed plastic lid to a container with the shrink wrap technology of Heilman. When considering the teaching of a particular reference, it is the teaching of the reference as a whole which must be considered. It is not proper for the Examiner to "pick and choose" selected portions of the cited art and, with the benefit of the Applicant's disclosure, render the invention obvious. The teachings must be viewed in their entirety, including any teaching away from the invention. Because there is no motivation to combine Amberg and Heilman claims 36-46 are, therefore, not rendered obvious thereby.

Even if a person skilled in the art would be motivated to combine the teachings of Heilman in Amberg, which, as previously described, Applicant submits there is no such motivation, the Examiner has still recognized some deficiency in the combination of Heilman and Amberg and has cited Anderson, et al. for teaching use of a colored material only in a selected area. The Examiner applies Anderson "in order to color only the edge of the film and not the entire material of Heilman, et al. in view of Amberg, et al." (Office Action, August 12, 2003, page 3). Anderson, however, is directed towards focusing radiant energy to particular spots because the entire material is opaque. The purpose is to avoid heating and subsequent melting of the entire surface of the thermoplastic material uses a laminate coating on the packaging material. Anderson teaches focusing the infrared radiation by using a lamp or an array of lamps and reflectors

to focus the energy at a particular location. (U.S. Patent No. 5,113,479, col. 2, lines 29-42). Various portions of the thermoplastic laminate may be pre-printed with a colored strip to enable less infrared radiation to be used when heating the material.

Thus, a critical difference in Anderson is that Anderson does not concern transparent shrink wrap technology at all. Anderson is concerned with melting (as opposed to shrinking which would cause cracking and crinkling) a thermoplastic laminate on a packaging material at specified locations to enable welding of the packaging material. The colored markings are optional in Anderson as the entire laminated material is opaque and thus able to generate heat when supplied with radiant energy. None of the problems associated with shrink wrap technology are addressed by Anderson as Anderson is concerned with an entirely different problem. Anderson limits the exposure area of the infrared radiation which converts radiant energy to heat. Applicant has done exactly the opposite. Applicant has increased the area of a transparent shrink wrap film which converts radiant energy to heat energy. This is clearly neither taught nor suggested by Anderson, either alone or in combination with Heilman and/or Amberg.

Moreover, Heilman shrinks both the skirt and the top with the same heat source. Thus, to operate in its current and intended manner, all portions of the Heilman material would be treated the same.

Thus, Applicant respectfully submits that the Examiner has failed to provide any motivation to combine the teachings of the cited art. The Examiner has failed to consider the teaching of the references as a whole, but rather has elected to pick and choose selected portions of the cited art and merely combine the unrelated art using the present disclosure as a motivation to do so.

Obviousness-Type Double Patenting

Applicant respectfully requests that the obviousness-type double patenting rejection be held in abeyance until claims 36-46 are held to be in allowance as such claims may be altered in the future in a manner such that any double patenting rejection would be obviated. Applicant respectfully submits that if claims 36-46 are deemed patentable as presented herein, that appropriate action will be timely taken to address the double patenting rejection.

Additionally, the patent which will issue on the present application and U.S. Patent No. 5,993,942 will both expire 20 years from the same effective filing date, i.e., they already have the same expiration date. Neither patent will extend beyond the other, with or without a Terminal Disclaimer. Accordingly, it is submitted that a Terminal Disclaimer is unnecessary.

CONCLUSION

Based on the arguments presented above, Applicant respectfully requests the entry of the amendment to the claims, withdrawal of the non-final rejection and notification of allowability of all the claims. Should any issues remain unresolved, the Examiner is encouraged to contact the undersigned in an attempt to resolve any such issues.

Respectfully submitted,

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